

AMENDMENTS TO THE CLAIMS

1. **(Currently amended)** A vaccine composition for vaccinating dogs comprising an agent capable of raising an immune response against *Mycoplasma cynos* (*M. cynos*) in a dog, wherein said agent comprises attenuated *M. cynos*, and wherein said immune response is protective against Canine Infectious Respiratory Disease (CIRD).

2.-7. **(Canceled)**

8. **(Previously presented)** A composition comprising a vaccine composition according to Claim 1 and a pharmaceutically acceptable carrier, diluent or adjuvant.

9. **(Previously presented)** The vaccine composition according to Claim 1 further comprising any one or more of:

an agent capable of raising an immune response in a dog against canine respiratory coronavirus (CRCV);

an agent capable of raising an immune response in a dog against canine parainfluenzavirus (CPIV);

an agent capable of raising an immune response in a dog against canine adenovirus type 2 (CAV-2);

an agent capable of raising an immune response in a dog against canine herpesvirus (CHV); and

an agent capable of raising an immune response in a dog against *Bordetella bronchiseptica* (*B. bronchiseptica*).

10. **(Currently amended)** A vaccine composition according to Claim 9 wherein the agent capable of raising an immune response in a dog against CRCV comprises inactivated or attenuated CRCV, ~~or an immunogenic fragment thereof, or a nucleic acid encoding said immunogenic fraction.~~

11. **(Currently amended)** A vaccine composition according to Claim 9 ~~wherein the agent capable of raising an immune response in a dog against CRCV~~ immunogenic fragment of CRCV comprises a Spike protein or a hemagglutinin-esterase (HE) protein of CRCV, or an immunogenic portion of the Spike or HE protein.

12. **(Currently amended)** A vaccine composition according to Claim 9 wherein the agent capable of raising an immune response in a dog against CPIV comprises inactivated or

~~attenuated CPIV, or an immunogenic fragment thereof, or a nucleic acid encoding said immunogenic fraction.~~

13. **(Currently amended)** A vaccine composition according to Claim 9 wherein the agent capable of raising an immune response in a dog against CAV-2 comprises inactivated or attenuated CAV-2,~~or an immunogenic fragment thereof, or a nucleic acid encoding said immunogenic fraction.~~

14. **(Currently amended)** A vaccine composition according to Claim 9 wherein the agent capable of raising an immune response in a dog against CHV comprises inactivated or attenuated CHV,~~or an immunogenic fragment thereof, or a nucleic acid encoding said immunogenic fraction.~~

15. **(Currently amended)** A vaccine composition according to Claim 9 wherein the agent capable of raising an immune response in a dog against *B. bronchiseptica* comprises inactivated or attenuated *B. bronchiseptica*,~~or an immunogenic fragment thereof, or a nucleic acid encoding said immunogenic fraction.~~

16. **(Previously presented)** A method of vaccinating a dog against canine infectious respiratory disease (CIRD) comprising administering to the dog a vaccine composition according to Claim 1.

17. **(Previously presented)** A method of treating CIRD in a dog comprising administering to the dog a vaccine composition according to Claim 1.

18. **(Withdrawn)** A method of stimulating an immune response against *M. cynos*, the method comprising administering to the dog an agent capable of raising an immune response against *M. cynos* in a dog.

19. **(Withdrawn)** The method according to Claim 18 further comprising administering to the dog any one or more of:

an agent capable of raising an immune response against *S. zooepidemicus* in a dog;

an agent capable of raising an immune response against a *Chlamydophila* in a dog

an agent capable of raising an immune response in a dog against CRCV;

an agent capable of raising an immune response in a dog against CPIV;

an agent capable of raising an immune response in a dog against CAV-2;

an agent capable of raising an immune response in a dog against CHV; and
an agent capable of raising an immune response in a dog against *B. bronchiseptica*.

20.-26. **(Cancelled)**

27. **(Withdrawn)** A kit of parts for a vaccine composition, comprising any one or more of:

- (a) an agent capable of raising an immune response against *S. zooepidemicus* in a dog;
 - (b) an agent capable of raising an immune response against *M. cynos* in a dog; and
 - (c) an agent capable of raising an immune response against a *Chlamydophila* in a dog,
- and a pharmaceutically acceptable carrier, diluent or adjuvant.

28. **(Withdrawn)** The kit according to Claim 27 further comprising any one or more of:

- (d) an agent capable of raising an immune response in a dog against CRCV;
- (e) an agent capable of raising an immune response in a dog against CPIV;
- (f) an agent capable of raising an immune response in a dog against CAV-2;
- (g) an agent capable of raising an immune response in a dog against CHV; and
- (h) an agent capable of raising an immune response in a dog against *B. bronchiseptica*.

29. **(Withdrawn)** A method of making an antibody that specifically binds to any one or more of *S. zooepidemicus*, *M. cynos* or a *Chlamydophila* comprising raising an immune response to any one or more of *S. zooepidemicus*, *M. cynos* or a *Chlamydophila*, or an immunogenic fragment thereof in an animal, and preparing an antibody from the animal or from an immortal cell derived therefrom.

30. **(Withdrawn)** A method of obtaining an antibody that specifically binds to any one or more of *S. zooepidemicus*, *M. cynos* or a *Chlamydophila* comprising selecting an antibody from an antibody-display library using any one or more of *S. zooepidemicus*, *M. cynos* or a *Chlamydophila*, or an immunogenic fragment thereof.

31. **(Withdrawn)** An antibody that specifically binds to *S. zooepidemicus*, *M. cynos* or a *Chlamydomphila*.

32. **(Withdrawn)** A method of passively immunising a dog against CIRD comprising administering to the dog one or more antibodies that specifically bind to one or more of *S. zooepidemicus*, *M. cynos*, and a *Chlamydomphila*.

33. **(Withdrawn)** A method of treating CIRD in a dog comprising administering to the dog one or more antibodies that specifically bind to one or more of *S. zooepidemicus*, *M. cynos*, and a *Chlamydomphila*.

34. **(Withdrawn)** A method according to Claim 32 further comprising administering to the dog antibodies that specifically bind to any one or more of CRCV, CPIV, CAV-2, CHV, and *B. bronchiseptica*.

35.-37. **(Cancelled)**

38. **(Withdrawn)** A composition comprising any two or more of an antibody that specifically binds to *S. zooepidemicus*, an antibody that specifically binds to *M. cynos*, and an antibody that specifically binds to a *Chlamydomphila*.

39. **(Withdrawn)** A composition according to Claim 38 further comprising antibodies that specifically bind to any one or more of CRCV, CPIV, CAV-2, CHV, and *B. bronchiseptica*.

40. **(Original)** A vaccine composition comprising:

(b) an agent capable of raising an immune response against *M. cynos* in a dog;
and

(d) an agent capable of raising an immune response against CRCV in a dog.

41. **(Original)** The vaccine composition according to Claim 40 further comprising any one or more of:

(c) an agent capable of raising an immune response against a *Chlamydomphila* in a dog;

(e) an agent capable of raising an immune response in a dog against CPIV;

(f) an agent capable of raising an immune response in a dog against CAV-2;

(g) an agent capable of raising an immune response against CHV in a dog; and

(h) an agent capable of raising an immune response in a dog against *B. bronchiseptica*.

42. **(Original)** The vaccine composition according to Claim 40 further comprising:
- (a) an agent capable of raising an immune response against *S. zooepidemicus* in a dog.
43. **(Withdrawn)** A method of determining whether a dog has been exposed to a *Chlamydomphila* species associated with CIRD, the method comprising:
- (a) obtaining a suitable sample from the dog; and
 - (b) identifying a *Chlamydomphila* species associated with CIRD, or an antibody there to, in the sample.
44. **(Withdrawn)** A method according to Claim 43 wherein the *Chlamydomphila* species associated with CIRD has 23S rRNA comprising the sequence (when shown as RNA) of any of SEQ ID No: 1 to 8.
45. **(Withdrawn)** A method of determining whether a dog has or is susceptible to CIRD, the method comprising:
- (a) obtaining a suitable sample from the dog; and
 - (b) identifying any one or more of *S. zooepidemicus* or *M. cynos* or *Chlamydomphila*, or an antibody to any of these, in the sample.
46. **(Withdrawn)** A method according to Claim 45 wherein the *S. zooepidemicus* or *M. cynos* or *Chlamydomphila* is identified using an antibody.
47. **(Withdrawn)** A method according to Claim 45 wherein the *S. zooepidemicus* or *M. cynos* or *Chlamydomphila* is identified using a nucleic acid.
48. **(Withdrawn)** A method according to Claim 45 wherein the anti-*S. zooepidemicus* antibody is detected using a *S. zooepidemicus* or an antigenic portion thereof.
49. **(Withdrawn)** A method according to Claim 45 wherein the anti-*M. cynos* antibody is detected using a *M. cynos* or an antigenic portion thereof.
50. **(Withdrawn)** A method according to Claim 45 wherein the anti-*Chlamydomphila* antibody is detected using a *Chlamydomphila* or an antigenic portion thereof.
51. **(Withdrawn)** A method according to Claim 43 wherein the sample is an antibody-containing sample.
52. **(Withdrawn)** An immunosorbent assay for detecting antibodies associated with CIRD, the assay comprising:

a solid phase coated with any one or more of (a) an agent capable of raising an immune response against *S. zooepidemicus* in a dog; (b) an agent capable of raising an immune response against *M. cynos* in a dog; and (c) an agent capable of raising an immune response against a *Chlamydophila* in a dog;

and a detectable label conjugate which will bind to the antibodies bound to the solid phase.

53. **(Withdrawn)** An immunosorbent assay according to Claim 52 wherein the solid phase contains any two or all three of (a), (b) and (c).

54. **(Withdrawn)** A solid phase substrate coated with any one or two or all three of (a), (b) and (c) as defined in Claim 52.

55. **(Withdrawn)** A method according to Claim 33 further comprising administering to the dog antibodies that specifically bind to any one or more of CRCV, CPIV, CAV-2, CHV, and *B. bronchiseptica*.

56. **(Withdrawn)** The method of Claim 51, wherein the antibody-containing sample is selected from the group consisting of serum, saliva, tracheal wash and bronchiolar lavage.

57. **(New)** The vaccine composition according to Claim 1 further comprising an agent capable of raising an immune response against *Streptococcus equi sub species zooepidemicus* (*S. zooepidemicus*) in a dog.

58. **(New)** The vaccine composition according to Claim 57 wherein the agent capable of raising an immune response against *S. zooepidemicus* in a dog comprises inactivated or attenuated *S. zooepidemicus*, or a structural protein of *S. zooepidemicus* or an immunogenic portion thereof, or a sequence variant of said structural protein or immunogenic portion thereof, or a nucleic acid encoding said structural protein, portion or sequence variant, wherein said sequence variant has at least 90% sequence identity to the polypeptide sequence of said structural protein or immunogenic portion thereof.

59. **(New)** The vaccine composition according to Claim 1 further comprising an agent capable of raising an immune response against a *Chlamydophila* in a dog.

60. **(New)** The vaccine composition according to Claim 59 wherein the agent capable of raising an immune response in a dog against *Chlamydophila* comprises inactivated or attenuated *Chlamydophila abortus*, or a structural protein of *Chlamydophila abortus* or an

immunogenic portion thereof, or a sequence variant of said structural protein or immunogenic portion thereof, or a nucleic acid encoding said structural protein, portion or sequence variant, wherein said sequence variant has at least 90% sequence identity to the polypeptide sequence of said structural protein or immunogenic portion thereof.

61. (New) The vaccine composition according to Claim 59 wherein the agent capable of raising an immune response in a dog against a *Chlamydophila* comprises inactivated or attenuated *Chlamydophila psittaci*, or a structural protein of *Chlamydophila psittaci* or an immunogenic portion thereof, or a sequence variant of said structural protein or immunogenic portion thereof, or a nucleic acid encoding said structural protein, portion or sequence variant, wherein said sequence variant has at least 90% sequence identity to the polypeptide sequence of said structural protein or immunogenic portion thereof.

62. (New) The vaccine composition according to Claim 59 wherein the agent capable of raising an immune response in a dog against a *Chlamydophila* comprises inactivated or attenuated *Chlamydophila felis*, or a structural protein of *Chlamydophila felis* or an immunogenic portion thereof, or a sequence variant of said structural protein or immunogenic portion thereof, or a nucleic acid encoding said structural protein, portion or sequence variant, wherein said sequence variant has at least 90% sequence identity to the polypeptide sequence of said structural protein or immunogenic portion thereof.

63. (New) The vaccine composition according to Claim 59 wherein the agent capable of raising an immune response in a dog against a *Chlamydophila* comprises inactivated or attenuated *Chlamydia muridarum*, *Chlamydia pecorum*, *Chlamydia pneumoniae*, *Chlamydia suis* or *Chlamydia trachomatis*, or a structural protein of *Chlamydia muridarum*, *Chlamydia pecorum*, *Chlamydia pneumoniae*, *Chlamydia suis* or *Chlamydia trachomatis*, or an immunogenic portion thereof, or a sequence variant of said structural protein or immunogenic portion thereof, or a nucleic acid encoding said immunogenic protein, portion or sequence variant, wherein said sequence variant has at least 90% sequence identity to the polypeptide sequence of said structural protein or immunogenic portion thereof.